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AUSTRALIA
1925

KIKUYU GRASS

(Pennisetum Clandestinum).

A Wonderful Permanent Summer Fodder.

This Summer Fodder is the Greatest Introduction since the advent of Lucerne. Although the many wonderful claims advanced for Kikuyu may read like a fairy story, all can be supported by practical results obtained in both South Africa and Australia. It behoves every Australian farmer to thoroughly investigate Kikuyu, as there are very few conditions of soil or climate under which it will fail to be a Great Asset and a Splendid Investment.

The First Growth of Kikuyu Grass. Cows just turned in.
This and the other illustrations in this leaflet have been reproduced from photographs kindly loaned us by the New South Wales Dept. of Agriculture.

SPECIAL POINTS ABOUT KIKUYU GRASS

1. **Is Easily and Cheaply Established and Thoroughly Permanent.**
2. **Is a Highly Nutritive and Palatable Summer Fodder.**
3. **One of the Most Drought-Resistant Plants known.**
4. **Withstands Cold Weather and Frosts Well.**
5. **Neither Lime nor Manure are Essential, although both are beneficial.**
6. **Excellently Adapted to Poor, Sandy Land and Grows Well on Any Loose Soil.**
7. **Can be Grazed, Cut and Fed Green, or Made into Hay.**
8. **Will Overcome and Smother Bracken and Weeds, and Converts Poor Speargrass Country into Good, Pastoral Land.**
9. **Makes a Splendid Fire-Break as it Remains Green and Succulent right through the Summer.**
10. **Will Grow in Water alone, deriving its Nourishment from the Air, thus proving its Hardiness.**
11. **Horses, Bullocks, Dairy Cows, Sheep, Pigs and Poultry all like Kikuyu, and will eat it with Relish.**

F. H. BRUNNING PTY. LTD.
64 ELIZABETH STREET, MELBOURNE
BULK STORES, 22 HANNA ST., SOUTH MELBOURNE.

No. 19824.

1. Q. WHAT IS KIKUYU GRASS?

A. Kikuyu Grass (Pennisetum Clandestinum) is one of the hardiest perennial grasses with a high feeding value, that has ever been grown in Australia. It comprises three edible parts, **(1)** A very dense succulent top growth which reaches a height of about three feet, **(2)** The surface runners from which this top growth rises, and **(3)** the underground runners which are exactly the same as the surface runners, and from which the roots develop.

Kikuyu Grass is drought-resistant even to a higher degree than Sudan Grass and it is not susceptible to cold.

In 1913, a single plant of this fodder was brought in a milk tin from Kikuyu in East Africa and presented to the Botanical Experimental Station at Groen Kloof, Pretoria. The result of several tests, which were made to ascertain its value, was that the Station issued a pamphlet strongly recommending the grass to South African farmers, and assuring them, **(a)** that it would provide them with an abundance of palatable and succulent fodder, **(b)** that in feeding value it was about equal to Lucerne, **(c)** that it was a drought resister, and **(d)** that it would adapt itself to every condition of soil and climate.

The same paddock. First growth of Kikuyu Grass half eaten down.

2. Q. IS THERE ANY AUSTRALIAN TESTIMONY SUPPORTING THE SOUTH AFRICAN REPORT IN No. 1?

A. Yes, from Northern Queensland to Southern Victoria and thence across to West Australia, highly favorable reports of the grass have been received by the State Departments of Agriculture. The following are a few quotations from letters forwarded by landholders:—

"The Kikuyu has made wonderful progress." "Cattle are exceptionally fond of it." "Cows milk particularly well on it." "It is far and away the best grass I have tried here." "Stock are very fond of it." "In thirteen months, it has smothered out all ferns and weeds." "Its growth has exceeded all expectations."

Proof of the hardiness of Kikuyu Grass comes from Mr. J. H. Curran, of Copeland, N.S.W., who writes, "It stands alone as a fodder grass. All my stock eat the grass greedily, in fact they prefer it to Prairie Grass. The altitude of this place is 2700 feet."

3. Q. HOW IS IT PROPAGATED?

A. Under Australian and South African conditions, Kikuyu does not produce seed, and must be propagated from the rhizomes or root-stocks. It is easily established in this manner and the growth is so rapid and extensive, that even a single plant will cover a fair area in one season.

4. Q. WHAT IS ITS SPHERE OF UTILITY?

A. It is admirably suited for grazing, for soiling and for hay. Several cuttings of palatable and nutritious fodder may be got from it during a single season, while, owing to the closeness and rapidity of its growth, it is well adapted for suppressing weeds on dirty land.

In the Journal of the N.S.W. Agricultural Dept. for January, 1923, two photographs are published, showing a paddock in which nothing is to be seen but bracken fern, and the other the same paddock under a luxurious growth of Kikuyu Grass which has suppressed the ferns. Encouraging reports of the progress of Kikuyu amongst bracken fern have been received from Phillip Island and from Korumburra.

Kikuyu Grass would be suitable for lawns but for the fact that its rapid growth would necessitate frequent mowing. Fowls are very fond of its soft top growth, and it is highly suitable for a poultry run, because, when well established, the fowls are unable to scratch out the underground runners. As it remains green and succulent throughout the year, Kikuyu would make an effective fire-break around a homestead. Care must be taken, however, not to plant it in a garden.

5. Q. HAS IT ANY SPECIAL SOIL REQUIREMENTS?

A. No, as already stated in No. 1, it will thrive in any soil, but it seems

to make much quicker progress when planted in loose or sandy ground. It certainly grows well in poor quality soil, but at the same time responds readily to good ground or fertiliser. Loose or light soil appears to be more suitable, as it very much facilitates the rooting of the runners.

6. Q. HAS IT ANY SPECIAL CLIMATIC REQUIREMENTS?

A. No. It might be thought that a grass indigenous to Equatorial Africa would be unable to withstand the comparative cold of a Victorian Winter, but a client of ours, who has been experimenting with grasses for many years, has had several plots of Kikuyu under observation since June, 1923, both in the suburbs and at his country property in Gippsland.

He reports that at St. Kilda and at Elsternwick, the Kikuyu resisted the cold as successfully as adjoining plots of Prairie Grass and much better than Elephant Grass, and while some patches of Paspalum Distichum on an adjoining lawn turned quite brown with the first really cold weather, the **Kikuyu remained green** all through the Winter.

During the rest of the year, it grew faster than any other permanent pasture plant, with the exception of Lucerne (with which our informant is well acquainted) and Kikuyu has some advantages even over the latter. At Powlett River, in South Gippsland, it grew rapidly all through the year. Kikuyu thrives in sunshine or shade, and it is actually holding its own with Panic Veldt Grass in a shrubbery at Elsternwick. A report from Clump Point, in Northern Queensland, shows that it flourishes under great heat.

KIKUYU GRASS.

The grass possesses a strong root system, and throws out roots at every joint or node of the stem.

7. Q. DOES IT NEED LIME AND FERTILISER?

A. It has been proved by experiment, both in South Africa and Australia, that Kikuyu will grow well in every class of soil. The absence of either lime or fertiliser will not prevent its growth, but it has been fully demonstrated that the richer the soil, the greater the yield of fodder. There is no doubt that Kikuyu responds well to good treatment and that fertiliser, although not absolutely necessary (and in some cases lime), would be beneficial.

8. Q. WHEN AND HOW SHOULD THE ROOTS BE PLANTED?

A. Spring is the best season for planting, but the grass is so hardy that it will make a good start at almost any time. From the middle of August to the middle of September should be the ideal time for most parts of Victoria and N.S.W.

The rooted runners will establish a stand much more quickly than the surface runners. The roots develop from the nodes on the surface runners, which should be planted with one node showing above the ground.

Take care not to plant the sets too deep and do not allow stock in the paddock soon after planting, as they will eat the surface runners, and prevent them from spreading. It is very important, however, that later on the top growth is kept eaten down, as the leaves always bend over when they reach a height of about three feet. The leaves, though always tender, green and succulent, are rather brittle, which is somewhat of a disadvantage when harvesting for hay. The **hay** is, however, **very palatable and nutritious.** The best distance for putting out the runners is in rows **6 feet** apart, allowing **3 feet** between each set in the rows.

Kikuyu Grass grows so rapidly that within twelve months, one acre will provide sufficient plants to cover five acres, and within another year those five acres can be made to plant twenty-five acres, and so on. Any farmer can make a good start with a plot of a few hundred roots planted on good prepared land, three feet apart each way. When the plot is well covered, the roots can be chopped out in sods and put in the paddock in 6 feet rows, allowing

3 feet between each sod. By this means, the check liable to occur with transplanting is obviated, and the grass starts growing right away in its new position.

Another method without losing the use of much land while the grass is spreading, is to plant the cuttings in rows **10** or **12 feet** apart, with **3 feet** between each set, in plow furrows in a paddock which is being planted with Maize, Sudan Grass or Millet for green fodder. Next season the area for seeding will be much smaller, and providing stock have been kept off meanwhile, the whole paddock will be under Kikuyu by the third season. It will then be unnecessary to plant fodder crops for the emergencies of the season, and beyond cutting some of the Kikuyu for hay, the farmer need have no cultivation worries or expenses while he will be able to face a dry season with equanimity. With supplementary paddocks of Subterranean or other Clovers for Winter feed there will then be a well-balanced ration available for his stock.

The most valuable product, both to the individual and the community, is that which gives the **greatest value for the least effort,** and this is the case with **Kikuyu.** It involves so little labor that it is **practically all profit.**

9. Q. WHAT SUBSEQUENT TREATMENT IS NECESSARY?

A. None, except to keep the top growth eaten down. Like all other grasses that throw out abundant root stocks, Kikuyu is likely to become sod bound in a few years, and then its yield of top growth will decrease. It seems possible to turn this drawback into an advantage, as the N.S.W. Dept. of Agriculture reports that "Sheep will eat the underground runners readily," which is only to be expected, seeing that they are really surface runners which have penetrated underground. On light sandy ground at Brighton, these underground runners have already gone down 9 or 10 inches.

This mass of underground runners is a store of fodder on which the farmer can draw at any season by simply plowing the runners up. This plowing not only provides extra fodder, but it will benefit the Kikuyu and give the Clovers growing with it a fresh start, especially with a top-dressing of superphosphate. These underground runners would be especially appreciated by pigs, who would enjoy turning up and devouring the roots.

10. Q. WILL KIKUYU STAND EXCESSIVE MOISTURE?

A. Yes. One remarkable feature of this grass is that although a drought-resister, it will grow under moist conditions that would be fatal to ordinary fodder plants. A few hardy grasses, when placed in clean water without a particle of soil on their roots, will continue to grow and some will even form seed. Kikuyu is one of these, although it does not form seed in Australia.

This ability to grow in water and air only, may account for its wonderful productivity, the nutriment which it draws from the soil being so much to the good. It is not a swamp grass, but frequent flooding will not kill it.

In October, 1923, a sugar bag of runners (some with roots and some with nodes only), was planted on partly reclaimed swamp land on the Powlett River. The season was unusually wet, and the plants were flooded before they were a fortnight in the ground. Several other floods failed to destroy them, and in the following May, two Potato bags of runners were dug from the plot for transplanting elsewhere.

In the "Western Mail," Perth, W.A., of the 29th May, 1924, **Mr. F. Arnold, Warren River, W.A.,** writes of Kikuyu Grass:—

"My original roots of Kikuyu Grass were sent from Rhodesia enclosed in a tin box, and were eight weeks on the journey. I laid them in water for 12 hours and noticed they looked much refreshed thereby. I then concluded the grass was certainly a drought resister.

"I planted the roots on light, sandy soil, and five roots grew; six months later, on 5th November, I transplanted three of the roots.

"No. 1 root, I planted near an open drain alongside a gully, the drain goes dry in Summer. **No. 2,** I planted on good land with clay subsoil; it was never watered. It sent out runners all round, and by the end of March, it looked like a green cushion, 3 feet across. In mid-April, the cattle ate it off close, yet by the end of August it measured 12 feet across.

"No. 3 root, I just dug a hole among the bracken and rubbish and put it in. It made very good growth, despite the attention given to it by Wallaby and brush. I now wanted to prove if the grass could grow under Subterranean and Cluster Clover, so I plowed up a piece of land which was smothered with Cluster Clover and cut up No. 1 root. We had a good rain in March, water ran down the open drain and the Kikuyu got busy. From the tiny roots of 3 inches long, I transplanted 2,000 roots the following May.

"It has grown well among the clovers, running up as high as the latter, and when the clovers have dried off, it has provided the green feed so essential to stock in the dry weather. The past Summer has been the driest on record in the wet South-West, but the Kikuyu has kept green and growing where there was the least moisture.

"It is not a swamp grass, but I wanted to see if it could live under water. I planted roots along the river where the flood water would cover it, and it made good growth before the heavy rains came, and was **under water from about 25th May until near the end of October.** When the river went down, I found the runners quite bare, but a few days after green shoots appeared at every joint, and it **soon resembled a green mat."**

The above report should be ample testimony to the fact that in spite of being a drought-resister, Kikuyu Grass will stand excessive moisture.

11. Q. DOES IT GROW WELL IN MIXTURE WITH OTHER FODDER PLANTS?

A. Yes. The N.S.W. Dept. of Agriculture has found that both Subterranean Clover and Lotus Major grow well with Kikuyu Grass in its earlier stages, and the Groen Kloof Experimental Station, Pretoria, South Africa, has published photographs showing Kikuyu and Hubam Clover growing in a dense mass together.

The use of Subterranean Clover overcomes two objections to Paspalum Dilatatum, namely, that it formed too close a sod, and that it failed to provide sufficient Winter fodder. In conjunction with Subterranean Clover, Paspalum

Dilatatum now supplies an "All the Year Round" pasture. In some paddocks in South Gippsland, where they have been growing together for several years, there is no prospect of the Paspalum ousting the Clover.

From this experience, Subterranean Clover should therefore be a most suitable plant for growing in association with Kikuyu Grass.

12. Q. CAN KIKUYU EVER BECOME A PEST?

A. Owing to its yielding no seed under Australian conditions, **Kikuyu** Grass **cannot be disseminated by stock** in paddocks where it is not wanted. It certainly would be difficult to eradicate, but why should any farmer, who has carefully decided what proportion of Kikuyu Grass he will plant on his property, and who has planted no more than that area, ever wish to get rid of such a desirable pasture.

13. Q. IS KIKUYU LIABLE TO BLOAT STOCK?

A. Kikuyu is evidently a safe fodder, for in none of the many reports which we have collected concerning it, is there any mention of injury to stock from eating it. Judging by its appearance, Kikuyu is no more likely to cause bloat than a rank growth of Ryegrass or Cocksfoot.

The runners, though succulent, are solid—unlike the stems of Red Clover and some other plants which cause bloat. To make certain on this point, one of our clients who intended planting the grass on a large scale, communicated with the Dept. of Agriculture at Nairobi, British East Africa, (in the plant's native territory), and received a reply stating that **Kikuyu was NOT dangerous** to stock.

The same paddock after the First Growth had been eaten off. In the foreground the second growth is just coming away.

14. Q. HOW DOES KIKUYU COMPARE WITH LUCERNE?

A. Kikuyu Grass grows almost as rapidly as Lucerne and is about equal to it in feeding value. It is much more hardy and adaptable, and its growth and permanency cannot be affected by weeds. Like Lucerne, it responds well to irrigation, and irrigating Kikuyu should be a much less troublesome operation than irrigating Lucerne.

The following is a comparative statement of food values:—

	Lucerne.	Kikuyu No.1.	Kikuyu No. 2.
Moisture	76.00%	81.25%	76.09%
Crude Protein	4.05%	4.01%	3.63%
Carbohydrates	9.06%	5.81%	9.26%
Fibre	6.08%	5.98%	7.91%

The Kikuyu No. 1 analysis is based on Kikuyu grown in New South Wales, while the No. 2 figures are those supplied by the South African Dept. of Agriculture. It will thus be noticed that climatic conditions play an important part in varying its relative constituents, but that in each instance its feeding value compares very favorably with that of Lucerne. The drier conditions under which Kikuyu was grown in Rhodesia, appear to be better suited to a higher feeding value than those of New South Wales, so that apparently Kikuyu should rank even higher than Lucerne in such districts as the Mallee and Wimmera in Victoria.

15. Q. ARE NOT THE REPORTS ON KIKUYU TOO ENTHUSIASTIC?

A. The following paragraph from a pamphlet circulated amongst South African farmers by the Government Experimental Station at Groen Kloof, already referred to, is worth quoting:—

> "Many tons of Kikuyu will be turned into meat and milk, dairies will become more commercially successful with this easily grown, succulent and highly nutritious pasturage; the pig industry will develop with the increased supply of milk from the cream separator, the manufacture of cheese will convert an import into an export, more animals will exist and fatten per acre than was possible before, and its brilliant green color will be welcomed by man and beast alike in the glorious climate of Sunny South Africa."

It may be thought by some readers that the foregoing description of Kikuyu Grass is too wonderful to be true, but if Lucerne, for example, had been absolutely unknown in Australia until a few years ago, and if it had been introduced and tested in the same way as Kikuyu, the reports of those experimenting would have appeared equally as wonderful as the reports received on Kikuyu.

Time will prove to the multitude what is already known and appreciated by the few, namely, that **Kikuyu is one of the best introductions** in fodder plants that has ever come into this country, and that it is going to take its place as one of our leading Permanent Pastures.

QUANTITIES OF AGRICULTURAL SEEDS USUALLY SOWN PER ACRE

The quantities shown are those generally used, and are only given as a guidance. These quantities vary considerably in some cases according to the conditions and method of sowing, as well as when used in mixtures. See Brunning's Farm Book, "Fodder Crops for Australia," Price 2/8, post free.

Name of Seed.	Quantity per acre when sown alone		Name of Seed.	Quantity per acre when sown alone	
Alsike Clover	B	12 lbs.	Lolium Subulatum	B	15 to 20 lbs.
Ambercane	B	12 lbs.	Lotus Major	B	3 to 4 lbs.
Ambercane	D	8 to 10 lbs.	Lucerne	B	15 to 20 lbs.
Barley (all varieties)	B	100 lbs.	Lucerne	D	7 to 10 lbs.
Beans, Tick or Horse	B	120 lbs.	Maize	B	112 lbs.
Beans, Soy	B	120 lbs.	Maize (for green fodder)	D	28 to 42 lbs.
Beet, Sugar	D	8 lbs.	Maize (for grain)	D	12 to 14 lbs.
Beet, Silver	D	4 to 5 lbs.	Mangel	D	4 lbs.
Berseem, Clover	B	15 to 20 lbs.	Meadow Foxtail	B	12 to 15 lbs.
Berseem, Clover	D	10 lbs.	Mustard (with Rape)		½ lb.
Birdsfoot, Trefoil	B	3 to 4 lbs.	Oats		80 lbs.
Bokhara Clover	B	10 lbs.	Paspalum	B	6 to 8 lbs.
Bokhara Clover	D	4 to 5 lbs.	Peanuts	D	28 to 30 lbs.
Boyd's Clover	B	4 to 5 lbs.	Peas, Field		120 lbs.
Broom, Corn	B	12 lbs.	Phalaris Bulbosa	D	2 to 3 lbs.
Broom, Corn	D	8 to 10 lbs.	Planter's Friend	See Imphee	
Buckwheat	B	50 lbs.	Prairie Grass	B	40 lbs.
Burr Clover	B	10 to 12 lbs.	Pumpkin (Hills')		2 lbs.
Cabbage, Field	D	2 lbs.	Rape	B	4 lbs.
Carrot, Field	D	4 lbs.	Rhodes Grass	B	8 to 10 lbs.
Chicory	D	4 lbs.	Rye Corn	B	120 lbs.
Chou Moellier	D	2 lbs.	Rye Grass (Perennial)	B	40 lbs.
Cocksfoot	B	40 lbs.	Sheep's Burnet	B	30 lbs.
Cow Grass	B	20 lbs.	Sorghums	B	12 lbs.
Cow Peas	B	90 to 120 lbs.	Sorghums	D	8 to 10 lbs.
Cow Peas	D	15 to 20 lbs.	Strawberry Clover (shelled)	B	2 lbs.
Crimson Clover	B	12 to 15 lbs.	Subterranean Clover	B	2 to 3 lbs.
Crested Dogstail	B	20 lbs.	Sudan Grass	B	15 to 20 lbs.
Hubam, Clover	B	10 to 12 lbs.	Sudan Grass	D	8 to 10 lbs.
Hubam, Clover	D	3 lbs.	Sugar Mangel	D	6 lbs.
Imphee	B	12 lbs.	Sunflower	D	8 to 10 lbs.
Imphee	D	8 to 10 lbs.	Swede	D	2 to 3 lbs.
Italian Rye Gross	B	40 lbs.	Sweet Clover	B	10 lbs.
Japanese Millet	B	15 lbs.	Sweet Clover	D	4 to 5 lbs.
Japanese Millet	D	8 to 10 lbs.	Tares	B	120 lbs.
Johnson Grass	B	12 lbs.	Timothy	B	30 lbs.
Johnson Grass	D	8 to 10 lbs.	Trefoil (Black Medic)	B	20 lbs.
Kale	D	2 to 3 lbs.	Turnip, Field	D	2 to 3 lbs.
Kentucky Blue Grass	B	30 lbs.	Wallaby Grass	B	15 to 20 lbs.
King Island Melilot	B	15 to 20 lbs.	Westernwolth Rye Grass	B	40 lbs.
King Island Melilot	D	10 lbs.	White Dutch Clover	B	12 to 14 lbs.
Linseed		84 lbs.	Yorkshire Fog Grass	B	20 lbs.

"B" represents sowing Broadcast. "D" is the quantity when sowing in Drills.

(The quantities in all cases are shown in pounds to avoid confusion with the varying weights per bushel of the different seeds and grains.)

SPECIALISTS IN
HUNTER RIVER LUCERNE, RYEGRASS, COCKSFOOT, SUBTERRANEAN CLOVER, STRAWBERRY CLOVER, GIANT COWGRASS, ALSIKE, WHITE CLOVER, RAPE, BERSEEM, SUDAN GRASS, PASPALUM & ALL FARM SEEDS.

BRUNNINGS

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